## Space Weather Forecast

Issued on Tuesday, 23 November 2021 at 00:11 Local

**This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales**

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**Space Weather Forecast Headline: No significant activity.**

**Analysis of Space Weather Activity over past 24 hours**

**Solar Activity:** Solar activity was very low over the last 24 hours, with no significant X-ray flare activity observed. There are three sunspot regions on the Earth facing side of the Sun, both small, magnetically simple and stable.
No Earth-directed Coronal Mass Ejections (CMEs) have been observed in the available imagery.

**Solar Wind / Geomagnetic Activity:** The solar winds continued to gradually ease through the last 24 hours, from around 600km/s to be slightly elevated at 540km/s. The strength of the magnetic field carried by the wind persisted at background levels, with no notable periods of negative (southward) pointed field in the north-south component. Geomagnetic activity was Quiet to Unsettled (Kp 1-3).

**Energetic Particles / Solar Radiation:** The count rate of energetic particles (high energy protons) remained at background with no solar radiation storms occurring.

**Four-Day Space Weather Forecast Summary**

**Solar Activity:** Solar activity is expected to be Very Low, with only a slight chance of C-class flares due to the small and simple sunspots on the Earth-facing Sun.

**Solar Wind / Geomagnetic Activity:** There are no Earth-directed CMEs. Over the next couple of days Earth's interaction with the current coronal hole sourced fast winds is expected to wane and geomagnetic activity is expected to be predominantly Quiet. However, further enhancement in the solar wind is possible later in the forecast period from the fast winds of further small coronal holes. This brings a chance of geomagnetic activity increasing to Quiet to Unsettled with a chance of Active intervals day 3 and day 4 (25th and 26th)

**Energetic Particles / Solar Radiation:** The count rate of energetic particles (high energy protons) is expected to remain at background with no solar radiation storms forecast.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Met Office

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**Geomagnetic Storms:**

| Geo-Magnetic Storm Probability (Exceedance) | Level | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Minor or Moderate | G1 to G2 | No | 1 | 1 | 5 | 5 |
| Strong | G3 | No | 1 | 1 | 1 | 1 |
| Severe | G4 | No | 1 | 1 | 1 | 1 |
| Extreme | G5 | No | 1 | 1 | 1 | 1 |

**Radio Blackouts - X Ray Flares:**

| X Ray Flares Probability | Level | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Active | R1-R2 M Class | No | 1 | 1 | 1 | 1 |
| Very Active | R3 to R5 X | No | 1 | 1 | 1 | 1 |

**Solar Radiation Storms - (High Energy Protons):**

| Radiation Storms Probability (Exceedance) | Level ($cm^{-2}$ $sr^{-1}$ $s^{-1}$) | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Active | ≥ S1 | No | 1 | 1 | 1 | 1 |
| Very Active | ≥ S3 * | No | 1 | 1 | 1 | 1 |

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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